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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Application of	:	Customer Number: 46320
	:	
Andrew HICKSON, et al.	:	Confirmation Number: 9630
	:	
Application No.: 10/016,906	:	Group Art Unit: 2151
	:	
Filed: December 14, 2001	:	Examiner: J. Walsh
	:	
For:		SELECTION OF COMMUNICATION PROTOCOL FOR MESSAGE TRANSFER BASED ON QUALITY OF SERVICE REQUIREMENTS

APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Appeal Brief is submitted in support of the Notice of Appeal filed November 30, 2006, wherein Appellants appeal from the Examiner's rejection of claims 2-16, 18-21, and 23.

I. REAL PARTY IN INTEREST

This application is assigned to IBM Corporation by assignment recorded on December 14, 2001, at Reel 012388, Frame 0906.

II. RELATED APPEALS AND INTERFERENCES

Appellants are unaware of any related appeals and interferences.

III. STATUS OF CLAIMS

Claims 2-16, 18-21, and 23 are pending and finally rejected in this Application. Claims 1, 17, 22, and 24 have been cancelled. It is from the final rejection of claims 2-16, 18-21, and 23 that this Appeal is taken.

IV. STATUS OF AMENDMENTS

The claims have not been amended subsequent to the imposition of the Fourth Office Action dated August 31, 2006 (hereinafter the Fourth Office Action).

V. SUMMARY OF CLAIMED SUBJECT MATTER

Referring to Figures 1 and 2 and generally to independent claims 2-3, 5, 18, and 20-21, a method of communication in a publish/subscribe environment in which publisher programs 10 send messages 110 to subscriber programs 30 via one or more message brokering systems 20, 20' is disclosed. In response to receipt of a published message 110 at a message broker 20 (page 20, lines 21-22 of Appellants' disclosure), an appropriate quality of service for onward transmission of the message 110 is determined in reference to characteristics of the received message 110 and subscriber-specified quality of service requirements (page 20, line 30 through page 21, line 20). A communication protocol is selected in accordance with the determined quality of service, and the message 120 is then transmitted using the selected communication protocol (page 21, line 27 through page 22, line 3).

Referring specifically to independent claim 2, the subscriber-specified quality of service requirements include an indication of whether transactional message delivery is required (page 7, line 13 through page 8, line 2; page 22, lines 8-12). Also, the selection of the protocol includes

selecting a transactional communication protocol for transactional messages which match subscriptions 40 including the transactional message delivery requirement (page 30, lines 16-22; page 25, lines 14-27).

Referring specifically to independent claim 3, the subscriber-specified quality of service requirements include an indication of whether transactional message delivery is required (page 7, line 13 through page 8, line 2; page 22, lines 8-12). Also, the selection of the protocol includes selecting a non-transactional communications protocol for messages for which matching subscriptions 40 do not include the transactional message delivery requirement (page 30, lines 16-22; page 25, lines 14-27).

Referring specifically to independent claim 5, which refers to communication between a first message broker system 20 and a second message broker system 20 in a multi-broker network, the first message brokering system 20 is configured to access a repository 50 storing subscriber-specified quality of service requirements for subscriber programs which connect to the broker network via the second message brokering system 20'. The first message brokering system 20 determines a quality of service for the communication by referring to the subscriber-specified quality of service requirements for the subscriber programs which connect to the broker network via the second message brokering system 20' (page 21, lines 11-20).

Referring specifically to independent claim 18, the message broker 20 determines the appropriate quality of service by determining which subset of subscribers 30 are currently connected to the message brokering system and referring to the subscriber-specified quality of service requirements for only the currently connected subset of subscribers 30 (page 19, lines 20-30). The subscriber-specified quality of service requirements include an indication of whether transactional message delivery is required (page 7, line 13 through page 8, line 2; page 22, lines

8-12). The selection of the protocol includes selecting a transactional communication protocol for messages which match subscriptions 40 which include the transactional message delivery requirement, for only the currently connected subset of subscribers (page 19, lines 20-30; page 25, lines 14-27, page 30, lines 16-22).

Referring specifically to independent claim 20, the message broker 20 determines the appropriate quality of service by determining which subset of subscribers 30 are currently connected to the message brokering system and referring to the subscriber-specified quality of service requirements for only the currently connected subset of subscribers 30 (page 19, lines 20-30). For communication between a first message broker system 20 and second message brokering system 20' in a multi-broker network, the first message brokering system 20 is configured to access a repository 50 storing subscriber-specified quality of service requirements for subscriber programs which connect to the broker network via the second message brokering system 20'. The first message brokering system 20 determines a quality of service for the communication by referring to the subscriber-specified quality of service requirements for the subscriber programs which connect to the broker network via the second message brokering system and by referring to connection status information for connections between the first and second brokering systems 20, 20' (page 19, lines 20-24; page 21, lines 11-20).

Referring specifically to independent claim 21, the message broker 20 determines the appropriate quality of service by determining which subset of subscribers 30 are currently connected to the message brokering system and referring to the subscriber-specified quality of service requirements for only the currently connected subset of subscribers 30 (page 19, lines 20-30). For communication between a first message broker system 20 and second message brokering system 20' in a multi-broker network, the first message brokering system 20 is

configured to access a repository 50 storing subscriber-specified quality of service requirements for subscriber programs which connect to the broker network via the second message brokering system 20'. The first message brokering system 20 determines a quality of service for the communication by referring to the subscriber-specified quality of service requirements for the subscriber programs which connect to the broker network via the second message brokering system and by referring to connection status information for connections between the first and second brokering systems 20, 20' (page 19, line 30 through page 20, line 5; page 21, lines 11-20).

Referring to Figure 1 and to independent claims 23, a data processing system is disclosed. The data processing system includes first and a second message brokering systems 20, 20', and the first message brokering system 20 includes determination means 90, selection means 60, and transmitting means 70. The first and a second message brokering systems 20, 21 are configured to provide a publish/subscribe service for publisher and subscriber programs 10, 30. The data processing system establishes a plurality of communication connections 70 between the first and second brokering systems 20, 20', and each connection 70 provides a different quality of service. The determination means 90, in response to receipt of a published message 110 at the first message brokering system 20' (page 20, lines 21-22), determines an appropriate quality of service for transmission of the message 130 to the second brokering system 20' in accordance with subscriber-specified quality of service requirements for the received message 110 (page 20, line 7 through page 21, line 20). The selection means 60 selects, in accordance with the determined quality of service, a communication protocol provided by one of the communication connections 70 (page 19, lines 20-30; page 21, line 27 through page 22, line 3). The transmitting means 70 transmits the message 130 to the second brokering system 20' using the selected communication connection 70.

VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

1. Claims 2-16, 18-21, and 23 were rejected under 35 U.S.C. § 102 for anticipation based upon Owens et al., U.S. Patent No. 6,633,630 (hereinafter Owens).

VII. ARGUMENT

THE REJECTION OF CLAIMS 2-16, 18-21, AND 23 UNDER 35 U.S.C. § 102 FOR ANTICIPATION BASED UPON OWENS

For convenience of the Honorable Board in addressing the rejections, claim 2 stands or falls alone; claim 4 stands or falls together with independent claim 3; claims 6-16 stand or fall together with independent claim 5; claim 19 stands or falls together with independent claim 18; and each of independent claims 20-21 and 23 stand or fall alone.

At the outset, Appellants note that the statement of the rejection found on pages 2-6 of the Fourth Office Action is essentially identical to the statement of the rejection found on pages 2-6 of the Third Office Action dated March 28, 2006. In the third response dated June 26, 2006 (hereinafter the Third Response), Appellants addressed the Examiner's statement of the rejection in the Third Office Action. Therefore, Appellants' prior arguments also apply to the Examiner's statement of the rejection in the Fourth Office Action.

Independent claims 2-3, 5, 18, 20-21 and 23

In the Third Response, Appellants noted that on page 2 of the Third Office Action, the Examiner asserted that the claimed "message broker" is identically disclosed by feature 34 (i.e., a receiver 34; see column 7, lines 9-11 of Owens). However, Appellants disagreed with that

assertion and argued that the message receiver 34 of Owens would not be considered comparable to the claimed message broker. Instead, the message receiver 34 of Owens would be more appropriately analogized to a subscriber.

On page 6 of the Fourth Office Action, the Examiner responded to these arguments by asserting the following:

The applicant has argued Owens does not disclose a "message broker", since the receiver 34 of Owens cannot be a message broker. The examiner disagrees since the term "broker" has been given the broadest reasonable interpretation, wherein the term "broker" relates to an intermediary such as a stockbroker, who buys or sells stocks. In the current instance a "message broker" would be a broker, which sends or receives messages. A receiver of Owens receives messages, and is therefore a "message broker".

Appellants respectfully submit that the Examiner's conclusion is based upon an improper premise. Specifically, the Examiner has not employed a proper analysis based upon a claim construction for the term "broker." Although the Examiner properly construes the term "broker" as being related to an intermediary, the Examiner's example and subsequent analysis does comport with this proposed claim construction.

Referring to the Examiner's example of "a stockbroker," a stockbroker is not one "who buys or sells stock" (emphasis added), as asserted by the Examiner. Instead, a stockbroker is one who buys and sells stock. For example, when a client of the broker wishes to buy stock, the stockbroker doesn't just sell the stock to the client. First, the stockbroker must obtain the stock by purchasing the stock from another party. This other party sells the stock to the stockbroker, who sells the stock to the client. For the stock broker to act as an intermediary, the stock broker has to be between (i.e., in the middle or intermediate) the buying party and the selling party. Therefore, the stock broker must perform both the function of buying and selling.

The Examiner's analysis is predicated on being labeled a broker is sufficient if only one function is present (i.e., "buys or sells" (emphasis added). As argued by the Examiner, "[a] receiver of Owens receives messages, and is therefore a 'message broker.'" However, as evident from Fig. 1 of Owens, Owens does not teach that the receiver 34 acts as an intermediary between two parties. Therefore, the receiver 34 of Owens fails to identically disclose the claimed message broker.

Independent claims 2-3, 5, 18, 20-21 and 23 further recite:

responsive to receipt of a published message at a message broker, referring to characteristics of the received message and subscriber-specified quality of service requirements to determine an appropriate quality of service for onward transmission of the message.

To teach these limitations, on page 2 of the Fourth Office Action, the Examiner cited column 10, lines 1-8; column 7, lines 4-5; and lines 10-18 of the Abstract of Owens. On page 12 of the Third Response, Appellants disagreed with the Examiner's conclusion and argued the following:

The teachings found in column 10, lines 1-8 are only directed to sender options and not subscriber-specified quality of service requirements. The teachings found in column 7, lines 4-5 only state that a user chooses a communication mode with which to establish a connection 22, 34 with a network. Again, these teachings are not directed to subscriber-specified quality of service requirements. Finally, the teachings found in lines 10-18 of the Abstract note that message senders and receivers may choose from a variety of filter and forward options, but there is no explicit disclosure within Owens with regard to subscriber-specified quality of service requirements. Moreover, these cited passages are silent as to a message broker referring both to (i) characteristics of the received message and (ii) subscriber-specified quality of service requirements to determine an appropriate quality of service for onward transmission of the message.

On page 7 of the Fourth Office Action, the Examiner responded to these arguments by asserting the following:

The applicant has argued Owens does not disclose "subscriber-specified quality of service requirements". A sender or user, as defined by Owens, can be a subscriber. The users, senders and receivers can choose from a variety of filter and forward options, thus satisfying "specified quality of service requirements". The applicant has not claimed the particular "quality of service requirements" only that it includes "an indication of whether transactional message delivery is required", which is disclosed by Owens (see rejection above).

Appellants note the Examiner's assertion that "[a] sender or user, as defined by Owens, can be a subscriber." Although the Examiner did not attribute this assertion to a particular passage within Owens, in column 7, lines 14-19, Owens teaches the following:

A message sender 20 (who happens to be an information service subscriber, but does not have to be) who wishes to send an e-mail message to a message receiver 24 may establish a connection 22, via a Network Node 26, with an information service 14 such as the CompuServe Information Service.

Although Owens teaches that the message sender 20 can also be a subscriber (i.e., a receiver of information), Appellants respectfully submit that the Examiner is improperly asserting that one having ordinary skill in the art would recognize that the message sender 20 as being both a subscriber and a receiver at all times. When the message sender 20 is receiving information, the message sender 20 is not acting as a sender, and when the message sender 20 is sending e-mail messages, the message sender 20 is not acting as a receiver.

A dictionary definition of "subscribe" is "to enter one's name for a publication or service; *also* : to receive a periodical or service regularly on order <*subscribed* to many magazines>"¹ (emphasis in original). Thus, to be considered a subscriber of messages by one having ordinary skill in the art, one must be receiving the messages. The limitation at issue is "subscriber-specified quality of service requirements," which implies that the quality of service requirements

¹ <http://www.m-w.com/dictionary/subscriber>.

for a message are specified by the subscriber/receiver of the message. Therefore, any quality of service requirements that are specified by the message sender 20 of Owens, while acting as a message sender 20, would not identically disclose the claimed "subscriber-specified quality of service requirements," since the message sender 20 is not specifying these requirements as a subscriber/receiver.

Appellants also note that the Examiner's assertion that the filter and forward options provided to the receivers and options satisfy the "specified quality of service requirements" is conclusory and is not accompanied by supporting analysis. The term "quality of service requirements" is commonly used in this art. However, despite the well-known use of this term, the Examiner has not established that one having ordinary skill in the art would consider the filter and forward options taught by Owens as identically disclosing the claimed "quality of service requirements."

Although Appellants also argued that "these cited passages are silent as to a message broker referring both to (i) characteristics of the received message and (ii) subscriber-specified quality of service requirements to determine an appropriate quality of service for onward transmission of the message," the Examiner did not respond to this argument. The last sentence of the above-reproduced passage by the Examiner refers to a subsequent clause in the claims (i.e., "the subscriber-specified quality of service requirements include an indication of whether transactional message delivery is required") and does not address Appellants' arguments as to the clause at issue (i.e., "response to receipt of a published message ...").

Independent claims 2-3, 5, 18, 20-21 and 23 additionally recite:

selecting a communication protocol in accordance with the determined quality of service.

To teach these limitations, on page 2 of the Fourth Office Action, the Examiner cited column 9, line 61-column 10, line 1 and column 2, lines 24-27 of Owens. On page 13 of the Third Response, Appellants disagreed with the Examiner's conclusion and argued the following:

The teachings found in column 9, line 61-column 10, line 1 only teach that message senders and message receivers have a variety of message management options available to them. There is, however, no teaching with regard to a communication protocol being selected or that the communication protocol is selected in accordance to the determined quality of service. The Examiner's cited passage of column 2, lines 24-27 does not include teachings of Owens invention. Instead, this passage only discusses "the limitations in current communications technology."

The only relevant passage to the claimed limitations, which the Examiner has previously cited, is found in column 7, lines 4-5, which describes that the user choose a communication mode. This teaching, however, fails to state that the communication mode is selected based upon a determined quality of service, which is determined by referring to characteristics of the received message and subscriber-specified quality of service requirements, as recited in the claims. Instead, Owens appears to teach that the communications mode is chosen prior to the message even being sent. Thus, Owens cannot teach the communications mode is selected, in part, based upon characteristics of the received message.

On page 7 of the Fourth Office Action, the Examiner responded to these arguments by asserting the following:

The applicant has argued Owens does not disclose, "selecting a communication protocol in accordance with the determined quality of service". The examiner disagrees since Owens discloses the relation between "quality of service" desired by sender/receiver and the mode, which inherently has a protocol associated with it.

Appellants respectfully submit that the Examiner's reliance upon the doctrine of inherency to disclose this feature is misplaced. Inherency may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is

not sufficient to establish inherency.² To establish inherency, the extrinsic evidence must make clear that the missing function must necessarily be present in the thing described in the reference, and that the necessity of the feature's presence would be so recognized by persons of ordinary skill.³ Furthermore, reference is made to ex parte Schricker,⁴ in which the Honorable Board of Patent Appeals and Interferences stated the following:

However, when an examiner relies on inherency, it is incumbent on the examiner to point to the "page and line" of the prior art which justifies an inherency theory. Compare, In re Rijckaert, 9 F.3d 1531, 1533, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (when the PTO asserts that there is an explicit or implicit teaching or suggestion in the prior art, it must indicate where such a teaching or suggestion appears in the prior art); In re Yates, 663 F.2d 1054, 107, 211 USPQ 1149, 1151 (CCPA 1981).

The Examiner did not discharge that burden of indicating where selecting a communication protocol in accordance with a determined quality of service appears in the prior art. Moreover, as already argued above, Owens appears to teach that the communication mode is chosen prior to the message being sent. Thus, the use of a determined quality of service, which is in part based upon characteristics of the message, to select a communication protocol is not necessarily present in the teachings of Owens. Thus, Appellants respectfully submit that the Examiner has not established that this limitation is inherently disclosed by Owens.

The claims 2-2, 5, 18, 20-21 and 23 also recite:

transmitting the message using the selected communication protocol.

² In re Rijckaert, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (reversed rejection because inherency was based on what would result due to optimization of conditions, not what was necessarily present in the prior art); In re Oelrich, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981).

³ Finnegan Corp. v. ITC, 180 F.3d 1354, 51 USPQ2d 1001 (Fed. Cir. 1999); In re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999); Continental Can Co. USA v. Monsanto Co., 20 USPQ 2d 1746 (Fed. Cir. 1991); Ex parte Levy, 17 USPQ2d 1461 (BPAI 1990).

⁴ 56 USPQ2d 1723, 1725 (BPAI 2000).

To teach these limitations the Examiner cited column 9, line 61-column 10, line 8 of Owens. Appellants respectfully disagree that these cited passages teach the claimed limitations. As already noted above, this passage does not teach a communication protocol being selected or that the communication protocol is selected in accordance to the determined quality of service. Thus, this passage cannot teach that the message is transmitted using the selected communication protocol. The Examiner did not specifically address this particular argument in the Fourth Office Action.

The above argued differences between the invention defined in independent claims 2, 5, 18, 20-21 and 23 and the teachings of Owens undermine the factual determination that Owens identically describes the claimed invention within the meaning of 35 U.S.C. § 102.

Referring specifically to claim 2, the Examiner cited column 9, lines 61 through column 10, line 8; column 10, line 40; and column 11, line 66 as identically disclosing the limitations recited in the last paragraph of claim 2. As already noted above, the teachings found in column 9, line 61 through column 10, line 8 only teach that message senders and message receivers have a variety of message management options available to them and that a sender can select a mode by which message may be sent. Column 20, line 40 similarly describes that a communication mode used to notify a receiver may be different than the communication medium used by the sender. Appellants, however, are unclear as to how these passages identically disclose that the subscriber-specified quality of service requirements include an indication of whether transactional message delivery is required and that the selection of the protocol includes

selecting a transactional communication protocol for transactional messages which match subscriptions including the transactional message delivery requirement, as recited in claim 2.

Referring specifically to claim 3, the Examiner cited column 10, lines 28-34 as identically disclosing the recited in the last paragraph of claim 3. Upon reviewing this passage, Appellants are unclear as to how this passage identically discloses that the subscriber-specified quality of service requirements include an indication of whether transactional message delivery is required and that the selection of the protocol includes selecting a non-transactional communications protocol for messages for which matching subscriptions do not include the transactional message delivery requirement, as recited in claim 3.

Referring specifically to claims 5, 18, and 20-21, the Examiner referred to column 10, lines 28-34 as identically disclosing the limitations found, respectively, in the last two paragraphs in each of independent claims 5, 18, and 20-21. In this regard, Appellants note that the limitations recited in the last two paragraphs in each of independent claims 5, 18, and 20-21 are not identical. However, the Examiner only included a single statement of analysis. Upon reviewing these claims, Appellants note that the Examiner has not identified all of the claim elements in these claims. Moreover, the Examiner has neither clearly designated the specific teachings in Owens being used by the Examiner nor linked these specifically identified teachings in Owens to specific claimed elements. Instead, the Examiner has broadly asserted that all of these limitations are identically disclosed column 10, lines 28-34 without explaining why. In this

regard, the Examiner's rejection under 35 U.S.C. § 102 also fails to comply with 37 C.F.R. § 1.104(c).⁵

Referring specifically to claim 23, the Examiner merely cited column 10, lines 3-8. This passage, however, only refers to options for a sender and is completely silent with regard to the communication protocols between first and second message brokering systems, and how a communication protocol for use between the first and second message brokering systems is selected.

Conclusion

Based upon the foregoing, Appellants respectfully submit that the Examiner's rejection under 35 U.S.C. § 102 based upon the applied prior art not viable. Appellants, therefore, respectfully solicit the Honorable Board to reverse the Examiner's rejection under 35 U.S.C. § 102.

⁵ 37 C.F.R. § 1.104(c) provides:

In rejecting claims for want of novelty or for obviousness, the examiner must cite the best references at his or her command. When a reference is complex or shows or describes inventions other than that claimed by the applicant, the particular part relied on must be designated as nearly as practicable. The pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified.

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To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due under 37 C.F.R. §§ 1.17, 41.20, and in connection with the filing of this paper, including extension of time fees, to Deposit Account 09-0461, and please credit any excess fees to such deposit account.

Date: January 30, 2007

Respectfully submitted,

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VIII. CLAIMS APPENDIX

2. A method of communication in a publish/subscribe environment in which publisher programs send messages to subscriber programs via one or more message brokering systems, the method comprising the following steps:

responsive to receipt of a published message at a message broker, referring to characteristics of the received message and subscriber-specified quality of service requirements to determine an appropriate quality of service for onward transmission of the message;

selecting a communication protocol in accordance with the determined quality of service;
and

transmitting the message using the selected communication protocol, wherein
the subscriber-specified quality of service requirements include an indication of whether transactional message delivery is required, and wherein the protocol selecting step comprises selecting a transactional communication protocol at least for transactional messages which match subscriptions including said transactional message delivery requirement.

3. A method of communication in a publish/subscribe environment in which publisher programs send messages to subscriber programs via one or more message brokering systems, the method comprising the following steps:

responsive to receipt of a published message at a message broker, referring to characteristics of the received message and subscriber-specified quality of service requirements to determine an appropriate quality of service for onward transmission of the message;

selecting a communication protocol in accordance with the determined quality of service;
and

transmitting the message using the selected communication protocol, wherein
the subscriber-specified quality of service requirements include an indication of whether transactional message delivery is required, and wherein the protocol selecting step comprises selecting a non-transactional communications protocol for messages for which matching subscriptions do not include said transactional message delivery requirement.

4. A method according to claim 3, wherein the protocol selecting step comprises selecting a non-transactional communications protocol for any messages marked as non-persistent and for any messages for which matching subscriptions do not include said transactional message delivery requirement.

5. A method of communication in a publish/subscribe environment in which publisher programs send messages to subscriber programs via one or more message brokering systems, the method comprising the following steps:

responsive to receipt of a published message at a message broker, referring to characteristics of the received message and subscriber-specified quality of service requirements to determine an appropriate quality of service for onward transmission of the message;

selecting a communication protocol in accordance with the determined quality of service;
and

transmitting the message using the selected communication protocol, wherein

for communication between first and second message brokering systems in a multi-broker network,

the first message brokering system is configured to access a repository storing subscriber-specified quality of service requirements for subscriber programs which connect to the broker network via the second message brokering system, and wherein the first message brokering system determines a quality of service for the communication by referring to the subscriber-specified quality of service requirements for the subscriber programs which connect to the broker network via the second message brokering system.

6. A method according to claim 5, wherein the second brokering system sends to the repository aggregate quality of service requirements for the set of subscriber programs which connect to the broker network via the second message brokering system.

7. A method according to claim 6, wherein each brokering system in a multi-broker network sends to its connected message brokering systems aggregate quality of service requirements for the set of subscriber programs which are accessible via that brokering system.

8. A method according to claim 5, wherein the second brokering system sends to the repository subscriber-specific quality of service requirements for each subscriber program which connects to the broker network via the second message brokering system.

9. A method according to claim 5, wherein the second brokering system sends to the repository separate quality of service requirements for each of a plurality of different topics or topic groups.

10. A method according to claim 5, wherein the subscriber-specified quality of service requirements include an indication of whether transactional message delivery is required, and wherein the protocol selecting step comprises selecting a transactional communication protocol for transactional messages which match subscriptions including said transactional message delivery requirement.

11. A method according to claim 10, wherein a non-transactional message delivery protocol is selected for any messages for which matching subscriptions do not include said transactional message delivery requirement.

12. A method according to claim 5, including applying one or more override policy rules to determine whether to override a specified quality of service when no communication connections are available which provide the specified quality of service.

13. A method according to claim 12, wherein the override policy rules are message topic specific.

14. A method according to claim 12, wherein the override policy rules are subscriber specific.

15. A method according to claim 5, wherein the first and second message brokering systems are configured for establishing a plurality of communication connections there between, each connection providing a different quality of service, and wherein the selection of a communication protocol by the first message brokering system includes determining which of the plurality of connections are currently available for sending a message to the second brokering system and selecting a communication protocol provided by a currently available connection in accordance with the determined quality of service.

16. A method according to claim 15, including applying one or more override policy rules to determine whether to override a specified quality of service when no communication connections are currently available which provide the specified quality of service.

18. A method of communication in a publish/subscribe environment in which publisher programs send messages to subscriber programs via one or more message brokering systems, the method comprising the following steps:

responsive to receipt of a published message at a message broker, referring to characteristics of the received message and subscriber-specified quality of service requirements to determine an appropriate quality of service for onward transmission of the message;

selecting a communication protocol in accordance with the determined quality of service;
and

transmitting the message using the selected communication protocol, wherein

the message broker determines said appropriate quality of service by determining which subset of subscribers are currently connected to the message brokering system and referring to the subscriber-specified quality of service requirements for only the currently connected subset of subscribers, and

the subscriber-specified quality of service requirements include an indication of whether transactional message delivery is required, and wherein the protocol selecting step comprises selecting a transactional communication protocol for messages which match subscriptions which include said transactional message delivery requirement, for only the currently connected subset of subscribers.

19. A method according to claim 18, wherein a non-transactional message delivery protocol is selected for any messages for which matching subscriptions do not include said transactional message delivery requirement.

20. A method of communication in a publish/subscribe environment in which publisher programs send messages to subscriber programs via one or more message brokering systems, the method comprising the following steps:

responsive to receipt of a published message at a message broker, referring to characteristics of the received message and subscriber-specified quality of service requirements to determine an appropriate quality of service for onward transmission of the message;

selecting a communication protocol in accordance with the determined quality of service;
and

transmitting the message using the selected communication protocol, wherein

the message broker determines said appropriate quality of service by determining which subset of subscribers are currently connected to the message brokering system and referring to the subscriber-specified quality of service requirements for only the currently connected subset of subscribers, and for communication between first and second message brokering systems in a multi-broker network,

the first message brokering system is configured to access a repository storing subscriber-specified quality of service requirements for subscriber programs which connect to the broker network via the second message brokering system and wherein the first message brokering system determines a quality of service for the communication by referring to the subscriber-specified quality of service requirements for the subscriber programs which connect to the broker network via the second message brokering system and by referring to connection status information for connections between the first and second brokering systems.

21. A method of communication in a publish/subscribe environment in which publisher programs send messages to subscriber programs via one or more message brokering systems, the method comprising the following steps:

responsive to receipt of a published message at a message broker, referring to characteristics of the received message and subscriber-specified quality of service requirements to determine an appropriate quality of service for onward transmission of the message;

selecting a communication protocol in accordance with the determined quality of service;
and

transmitting the message using the selected communication protocol, wherein

the message broker determines said appropriate quality of service by determining which subset of subscribers are currently connected to the message brokering system and referring to the subscriber-specified quality of service requirements for only the currently connected subset of subscribers, and for communication between first and second message brokering systems in a multi-broker network,

the first message brokering system is configured to access a repository storing subscriber-specified quality of service requirements for subscriber programs which connect to the broker network via the second message brokering system and wherein the first message brokering system determines a quality of service for the communication by referring to the subscriber-specified quality of service requirements for the subscriber programs which connect to the broker network via the second message brokering system and by referring to connection status information for connections to said subscriber programs.

23. A data processing system comprising:

at least a first and a second message brokering systems, configured to provide a publish/subscribe service for publisher and subscriber programs, the data processing system being configured to establish a plurality of communication connections between the first and second brokering systems, each connection providing a different quality of service, wherein the first message brokering system includes:

means, responsive to receipt of a published message at the first message brokering system, for determining an appropriate quality of service for transmission of the message to the second brokering system in accordance with subscriber-specified quality of service requirements for the received message;

means for selecting a communication protocol provided by one of said communication connections, in accordance with the determined quality of service; and

means for transmitting the message to the second brokering system using the selected communication connection.

IX. EVIDENCE APPENDIX

No evidence submitted pursuant to 37 C.F.R. §§ 1.130, 1.131, or 1.132 of this title or of any other evidence entered by the Examiner has been relied upon by Appellants in this Appeal, and thus no evidence is attached hereto.

X. RELATED PROCEEDINGS APPENDIX

Since Appellants are unaware of any related appeals and interferences, no decision rendered by a court or the Board is attached hereto.